Risk communication and fatty fish:

By

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Abstract

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1. Introduction

There has long been a discussion regarding how much fatty fish from the Baltic Sea is safe to eat. These fish contain high levels of dioxin caused historically in part by the large amount of bleach effluent originating from the many pulp and paper mills located along the Swedish and Finnish Baltic Sea coasts but more recently by dioxin coming from the atmosphere (Wiberg et al 2013). By the mid-1990s, for example, women of child bearing age should eat fatty Baltic Sea fish no more than once a month while other consumers should eat the fish no more than twice a month. This was later strengthened so that at risk groups (children, women of child bearing age) should consume Baltic Sea fatty fish no more than 2-3 times a year (Swedish Food Agency 2008).

The consumption of Baltic Sea fatty fish gained international attention when the European Commission's Scientific Committee on Food in 2001 suggested the establishment of binding regulations that set stringent maximum levels of contaminants including dioxins and furans in food stuffs including fish (Scientific Committee on Food of the European Commission 2001). Swedish and Finnish regulators realized that if this regulation was made into law that the consumption of Baltic Sea fatty fish would be banned throughout Europe including their own countries. As a result, both of these member state governments challenged the proposed regulation arguing among other things that the benefits of consuming Baltic Sea fatty fish (such as consuming Omega 3s) outweighed the risks of higher levels of dioxin. Based in part on this argumentation the Swedish and Finnish and later the Latvian governments persuaded the European Commission to provide them with an exemption of the

proposed regulation firstly in 2001-2006 and then again 2006-2011 on the condition that:

a) The Baltic Sea fish would only be consumed in the country of origin and not exported to any other European member state;
b) The Swedish and Finnish governments would develop communication programmes informing women of child bearing age as well as children about the dangers of eating Baltic Sea fatty fish, especially herring, in order to reduce their consumption. (European Commission 2006; Kiljunen et al 2007)

In 2011 the Swedish and Finnish Governments asked for a permanent exemption of the regulation which they were granted after much opposition from a number of European parliamentarians and even the Swedish Food Agency itself (Erlandsson 2011; Swedish Food Agency 2011).

Swedish policy makers were aware that in order to maintain its permanent exemption that they needed to become better communicators of the risks associated with eating Baltic Sea fatty fish as research by the Swedish Food Agency had showed that a number of "at risk groups" especially women of child bearing age and to a certain extent parents with young children were not aware of the Baltic sea fatty fish consumption guidelines (Glynn et al 2013; Novus 2011). This was also one of the stipulations made by the European Commission when it offered Sweden the permanent exemption-that is to ensure that the "at risk" groups become more aware. The Swedish Government, therefore, decided on the 7th July 2011 to give the Swedish Food Agency a budget of 4 million Swedish crowns to help better inform the "at risk" Swedish consumer. This paper is a brief evaluation of the Swedish Food Agency's communication strategy. It is based on 6 interviews with Swedish Food Agency staff, email discussions with a number of Swedish scientists working on the fatty fish-dioxin issue, examination of all the media cuttings on the topic in the period 2011-2014 from six of Sweden's largest daily papers and a number of evaluation reports written up on the strategy itself, both internally by the Swedish Food Agency as well as by an external consultant used by the Swedish Food Agency, namely the Gullers Group. In conclusion, I put forward a number of recommendations on what the Swedish Food Agency and the Swedish Government should do now going forward with regard to the communication of the risks and benefits of consuming Baltic fatty fish.

2. Background on the difficulties of communication the risks of consuming Baltic Sea fatty fish

The communication of the dangers associated with the consumption of Baltic Sea fatty fish is not easy. There are a number of issues that stand out:

- The lack of uniformity of consumer guidance between the Finns and the Swedes;

- That the consumption of most fish is actually healthy;
- The problems associated with having different thresholds of dioxin levels in animal feed vis-a-vis human feed.

These issues are discussed down below.

One issue raised by professional Swedish fishermen association working along the North Baltic Sea coast is the inconsistency between the Swedish and Finish Food Agency guidance. Although the Swedish and Finnish Food Agencies worked together in providing their respective Ministries scientific background material on the benefits and risks of consuming fatty fish from the Baltic Sea they have not done that when it comes to the development of consistent consumer guidance regarding how much certain groups (women of childbearing age and children) should actually consume. The Swedish Food Agency notes that these two "risk groups" should eat Baltic Sea fatty fish no more than 2-3 times a year. Other adults should limit their consumption to one portion of the fatty fish per week. In Finland the guidance is substantially different. There the Finnish Agency Evira notes:

> "Children, young people and persons of fertile age should not eat large herring-which uncleaned are larger than 17cm or alternatively salmon and trout caught in the Baltic Sea more often than once or twice a month." (EVIRA 2013)

In other words the Finnish "at risk" groups can eat at least 12 times more Baltic Sea fatty fish than the Swedes and then the small Baltic Sea herring is not included. As one senior science official within the Swedish Food Agency noted:

> "There are two reasons why the guidelines are so different. Firstly, in Finland the Ministry has a much more active role in setting the guidance so politics play a part—while here in Sweden we set the guidance based on scientific criteria. Secondly, there is a so called "value" issue. We attach different values than the Finns. They take the view that values (cultural, history etc) of consuming Baltic Sea herring need to be taken more to account than what we do." (Senior Swedish Scientific Official, 16th December 2015)

Benefit-risk communication is never easy (Fischhoff 2013; Fischhoff et al 2011). This is especially the case when there are conflicting messages (Frewer et al 1996). In the Swedish Food Agency's case it wants the public to continue consume fish three times a week but at the same time not to consume fatty fish from the Baltic Sea. In other words not all fish is safe to eat. Unless carefully framed and pretested, such a message is difficult to understand and can lead to either public confusion overall regarding consumption guidelines or cause the Swedish public to consume less fish.

The final problem that the Swedish Food Agency faces is that animal feed is not exempt from the European regulation while human feed is. So in other words one is not allowed to feed cats and dogs fatty fish from the Baltic Sea while with humans one can. The reason why animal feed was not exempt was the concern among regulators that they did not want dioxin to enter the food chain. As one Swedish food agency spokes-person noted:

> "It is rather straight forward-we don't want to have any dioxins entering the food chain and as a result dioxin is banned from animal feed. What we do voluntarily as humans in terms of what we eat and drink is separate from this. But I do understand that this may be difficult to communicate." (Senior Swedish Food Agency spokesperson, 16th December 2015).

The communication regarding the exemption and non-exemption has indeed been difficult, however. This was highlighted in the media. One headline noted:

> "Fisken som bara manniskor far ata: Strommingen I Bottenhavet ar for giftig att bli katt mat." (Aftonbladet 28th September 2002) (Fish that only humans can consume: The herring in the Gulf of Bothnia is too poisonous to become cat food)

In the same article the journalist Kerstin Nilsson noted:

> "The kitten Lakrits can only watch when Alma, 10, and the rest of the family eat herring. The herring in the Gulf of Bothnia contain five times higher levels of dioxin than the EU recommended allowance. As a result herring cannot be consumed by animals. Only by people." (Nilsson 2002p.13)

From a communications perspective such an exemption vis-a-vis non exemption is very difficult to communicate. From an outsiders perspective one could draw the conclusion that the Swedes care more about the health of their cats than of their children.

3. The Swedish Food Agency communication campaign

The Swedish Food Agency started the campaign in earnest in August 2012 for a period of one year. As it had a limited budget the Agency used a hub and spoke system in which the spokes were primarily digital ads via Facebook, Google and Expressen SE while the hub was the dedicated webpage on fish consumption guidelines (www.nyttigfisk.se) .

This is not the first time that the Food Agency has provided consumer guidance on fish. It has in the past provided leaflets such as "Mat for sma barn" (20,000 copies per year), "Rad om mat till Dig som ar gravid" (100,000 copies/year) and "Rad om mat till Dig som ammar" (50,000 copies/year). In addition on the

Food Agency's own web site there is nutrition information regarding fatty fish which has 90,000 visits per year.

The difference with this campaign compared to past ones was that it wanted to prioritize certain populations such as women of child bearing age, families with young children, and finally people living next to the Baltic Sea coast or near lakes Vattern and Vanern, three "at risk" groups that had in past not been that aware of the Agency's consumption guidelines. The campaign had certain concrete goals namely (the following two paragraphs have been translated and paraphrased from the Swedish Food Agency 2013 evaluation, pages 4-5).:

- Increase awareness that there is consumer guidance for fish;
- Increase knowledge what the guidance mean;
- Increase the motivation to change behavior;
- Increase the knowledge that the Swedish Food Agency is the source of this information

The campaign itself had certain key messages. For example:

- Fish is good for you to eat but that dioxin fish is not good for you;
- The key message for "at risk" groups—namely they should not be eating fish with high levels of dioxin more than 2-3 times per year;
- That all other fish which is safe should be consumed at least three times a week

Between August 1st 2012-30th September 2013 the web-hubb www.nyttigfisk.se was visited 231,116 times. During these times the average visitor looked at 2 pages on the site and stayed on the webpage for under a minute. Some 65 per cent of these visits were generated by Google, Facebook and Expressen.Se. As expected most of the traffic on the dedicated webpage drummed up by the Facebook ad were from young individuals—some 95% of the 52,138 Facebook visitors were in the age group 13-17 years of age (Gullers Grupp 2013). In addition to the digital ads the Food Agency also put out notices in a number of local daily newspapers in areas where fatty Baltic Sea fish was knowingly consumed. These advertisements (size 80x65 mm) were placed up to 7 times during the length of the campaign in these local newspapers. Finally a short 67 second information film on the dangers of consuming fatty fish with a particular focus on herring was produced. This film was shown as an ad in cinemas under a period of three weeks. During that time some 661,000 cinema goers watched the information film.

The campaign was launched in August 2012 at the time of the start of the fermented herring eating season. As a result the campaign got significant coverage in the main TV channels including the news programme Rapport and

TV4 Morning show, but it was also picked up by a number of the local dailies from areas where the production as well as the consumption of fermented herring is widespread (north coast of Sweden). In sum, the local and national newspapers covered the campaign at least 300 times while radio and TV brought it up around 40 times. Among the newspaper headlines included:

"Fler an gravida bor ser upp med fisk" (more than just those who are pregnant should watch their consumption of fish) (Goteborgsposten, 20th August 2012)

. "Fet fisk-farlig for kvinnor och barn" (Fatty fish-dangerous for women and children) (Aftonbladet 20th August 2012)

"Koll pa fet fisk kravs redan fore graviditeten" (Being aware of fatty fish is needed before becoming pregnant (Dagens Nyheter, 20th August 2012)

4. What did results of the campaign show?

The Swedish Food Agency's campaign was evaluated by the consultancy firm Gullers Grupp based in Stockholm. It concluded that the campaign itself was good value for money. For example, the cost per visit on the hub webpage was estimated at between 5-8 SEK. Similarly, the Agency was able to generate quite a bit of publicity around the dangers of eating fatty fish from the Baltic Sea which had it bought that on the open advertising market would have costed some 6 million SEK (Gullers Grupp 2013). What is interesting to see is how the various media/advertisement campaigns directly impacted individuals visiting the dedicated website. In 2012 there were two main advertisement phases—at the start of fermented herring season and at Christmas (another time when Swedes enjoy eating herring). In an analysis conducted by the Gullers Group one can see a clear correlation between the advertisement campaigns and webpage visits (Gullers Group 2013, p.28)

One of the key goals of the campaign, that of informing families with small children regarding the fatty fish guidelines, was seen as a success. In a quantitative study conducted by TNS-Sifo with 999 parents with small children showed that although the same percentage of parents with small children as in 2010 were aware of the guidelines (72 per cent) , some of 50 per cent of the parents mentioned that the guidelines were also targeting young children (TNS Sifo 2013). This is a significant improvement to the previous 2010 study which showed that only 19 per cent of the parents were aware that these guidelines were aimed at children (Gullers Grupp 2013; TNS Sifo 2013). In addition 56 per cent of those parents interviewed knew where they could get consumer information regarding fatty fish which was considerably higher than the 49 per cent in 2010. Of those parents who knew were to get information a majority of them (75 percent) mentioned the Swedish Food Agency which is much higher

than the 2010 findings when only 58 per cent mentioned the Agency. Also encouragingly, of the same 72 per cent who were aware of the guidelines some 42 per cent noted that they would cut down on their consumption of Baltic Sea fatty fish as a result (TNS Sifo 2013).

Another "at risk" group was females in child bearing age. Therefore TNS-Sifo interviewed 497 women within this age group. The findings were not as positive as that for parents with small children. Although 67 per cent knew that these consumption guidance on Baltic Sea fatty fished were aimed at certain "at risk" populations, only 10 per cent of those women interviewed realized that one of these populations were actually themselves (Gullers Grupp 2013; TNS-Sifo 2013). It is, however, unclear whether their ignorance of the consumption guidelines will lead to long term health problems as only 3 per cent of the women admitted eating Baltic Sea herring more than a few times a year (TNS-Sifo 2013).

Finally, individuals living next to the northern part of the Baltic Sea and along the shores of Lake Vanern and Vattern were prioritized as they were seen as a group that could have greater access to Baltic Sea fish than other groups, and therefore more at risk. Sifo-TNS interviewed 493 coastal dwellers and they found that 52 per cent of the dwellers were aware of the consumption guidelines which is similar to the 2010 findings (56 per cent). Of those 52 per cent some 67 per cent knew that these guidelines were targeted at certain at risk groups. Thirty-eight per cent mentioned that the guidelines targeted young children which is considerably higher than the 2010 figure (20 per cent). An additional 7 per cent mentioned that the guidelines were also focused on women of child bearing age which is also higher than the 2010 figure (2 per cent) (TNS Sifo 2013).

In sum, the campaign showed mixed results. It was successful with parents who had young children, but with regard to females in child bearing age it was not. Although awareness of the guidelines showed little change among the coastal dwellers, at least those individuals who were aware of them showed greater knowledge than previously.

5. Analysis from a risk communication perspective

It is clear that the Swedish Food Agency has become a much better communicator regarding the benefits and risks within the food sector since the 2002 acrylamide scare (Lofstedt 2003). The fatty fish campaign was well executed and unusually well evaluated and analysed, something that does not always happen with communication programmes (Kasperson and Palmlund 1987; Lofstedt 2005). That said it was not a huge success, rather only a partial

one. There are a number of issues why this might have occurred and they are discussed below.

5.1 Risk perception

The Swedish regulators (especially the Swedish Chemicals Agency) and a number of politicians from both sides of the political spectrum have long pushed a strong anti-chemical agenda, calling, for example, that all human made chemicals should be banned by the year 2020 (Lofstedt 2014; Swedish Ministry of the Environment 2013). Similarly, Swedes themselves appear to be more concerned about artificial chemicals found in the environment and food (Lofstedt 2014). What is interesting is that this innate concern has not transferred to dioxin in Baltic Sea fatty fish. Women in child bearing age where blissfully ignorant of the dangers associated with consuming such food. It is unclear why this is the case. A series of possible explanations include that consuming Baltic Sea fish is viewed as a voluntary and not an involuntary risk, which is important as people are more concerned about involuntary risks than voluntary ones by a 1000-1 (Slovic 2000; Starr 1969). In addition dioxin in Baltic Sea fish could be seen as familiar rather than an unfamiliar risk (Fischhoff et al 1978; Slovic 1987). Finally, Swedes could take the view that the dioxin in the Baltic Sea fish is a natural rather than a technological hazard (Burton et al 1992; White 1945) even though in actual fact it is caused by humans.

5.2 The social amplification of risk

The Swedish Food Agency tried to have the risk associated with the consumption of Baltic Sea fatty fish to be amplified. That is one of the key reasons why the Agency launched the campaign at the time of the start of the fermented herring season. If risks are socially amplified they are picked up by a wider array of traditional and social medias as well as social networks (see Kasperson et al 1988; Pidgeon et al 2003). With regard to this campaign the risks were initially amplified-that is why the Agency was able to generate 6 million Swedish crowns of free publicity in the press. As time went on, however, this amplification effect slowly dissipated. Media simply does not discuss the dangers of eating Baltic Sea fatty fish to the same degree as during the campaign. For example, in the period June 2014-2015 content analysis of the six major dailies (Aftonbladet, Dagens Nyheter, Dagens Industri, Expressen, Goteborgsposten, Svenska Dagbladet) there were only two articles: one in (*Goteborgsposten* 19th August 2014) that mentioned the Food Agency's guidance with regard to the consumption of Baltic Sea fatty fish, and that appeared on pages 40-41 of the second section, and the second one in the same news paper on the 14th December under the misleading title "Herring is exceptionally good food" . Interestingly, in August 2014 *Svenska Dagbladet* ran an article in which the so called fermented herring academy was attempting

to get Sweden's fermented herring Protected Designation of Origin from the EU—there was no discussion regarding the fact that the fish was poisonous.

5.3 The cultural acceptability of consuming Baltic Sea fatty fish

As the former Swedish Agricultural and Rural Minister Eskil Erlandsson noted, consuming fermented herring in August on the first day of the season is part of Swedish food culture (Erlandsson 2011). On the day of most premiers, radio and TV personalities discuss the taste and smell (horrible) of the fermented herring. Aside from August 2012 at the time of the launch of the Agency's campaign most of these personalities do not bring up the fact that the fermented herring are actually poisonous. As a result, the dioxin in Baltic Sea herring simply has not been stigmatized enough (Flynn et al 2001). It is not seen to be dangerous but rather a part of Sweden's identity (Fischler 1988).

5.4 The role of trust

Trust can explain up to 50 per cent of the public perceptions' of risk (Lofstedt 2005; Slovic 1993). High levels of public trust is equivalent to low levels of public perceived risk and low levels of public trust is equivalent to high levels of public perceived risk. To find out whether the Swedish Food Agency was trusted or not the Agency asked TNS SIFO to do a telephone survey with 675 individuals representing a cross Swedish sample. What they found was that at the present time those Swedes that know of the Swedish Food Agency (35 percent) some 98 percent of them take the view that the Swedish Food Agency has high or very high level of trust (TNS SIFO 2014). In addition most of the consumers interviewed are not concerned about the risk associated with food or drinking water. Indeed some 96 percent think the risk is small or tiny with regard to get food poisoning from eating food and drinking water in the home. In other words the Swedes are simply not worried about the food they eat or water they drink. Sweden has not had a mad cow scare. If they are not worried about their food there is no reason to be concerned about the consumption of Baltic Sea fatty fish either. That said, one could have assumed that as a highly trusted Agency, any message on the risks associated with the hazards associated with eating Baltic Sea fish from the Agency itself should have been picked up by the publics. This did not happen in this case.

6. What should we do now going forward?

The Swedish Food Agency has done a commendable job with regard to communicating the risks of eating fatty fish from the Baltic Sea but some "at risk" groups are not aware enough about the inherent dangers of eating these types of fish. In addition, there is, for example, unnecessary confusion between the consumer guidance put forward by Sweden and Finland, the possibility of adding warning labels to fatty fish caught in the Baltic Sea and the need to

continue to evaluate communication messages. These recommendations are discussed in the next section.

6.1 Sweden and Finland need to have unified guidance when it comes to consuming Baltic Sea fatty fish

The Swedish and Finnish food agencies need to work together in providing consistent consumption guidance with regard to Baltic Sea fatty fish. It is rather strange that the Finnish "at risk" groups can eat at least 12 times more Baltic Sea fatty fish than the Swedes and then the small Baltic Sea herring is not included. As a result the Swedish and Finnish Food Agencies should work together now to reach a consensus on what is a "safe" level. How much fatty fish from the Baltic Sea could the "at risk" groups actually consume? If the Swedish and Finnish Agencies are unable to reach a consensus then an international expert group should be formed who would reach that consensus on their behalf.

6.2 The human –animal message is confusing and needs rectifying

The communication message that animal feed is not exempt from the European regulation while human feed is does not make sense. Why should cats and dogs have dioxin free feed while humans in Sweden and Finland can continue to eat fatty fish from the Baltic Sea in moderation? Yes, there is case that dioxin should not enter the food chain. It is bad enough that the fatty fish have dioxin. It would be unwise if pigs, farmed salmon, and other farm animals became contaminated with dioxin originating from the Baltic Sea. The issue, however, is that we do not consume cats or dogs. As a result, the Swedish Government needs to make a distinction between animal feed that will somehow enter the food chain (via farm animals) and animal feed that will not enter the food chain (pets and mink production). In such a case there would be ample room to increase the production of animal feed for non-farm animal sources based on fatty Baltic Sea fish. The large number of mink farms found in northern Europe, especially in Denmark and the Baltic States would be an ideal market for such animal feed.

6.3 Continued information campaign needed

It makes little sense for the Swedish Food Agency to have a one off information campaign as the information put out in the public domain will be quickly forgotten. What is needed instead is some form of a consistent campaign, ensuring that the "at risk" groups are reminded about the dangers of consuming fatty fish from the Baltic Sea. The Ministry/Agency does not have to spend 4 million crowns per campaign as one could argue that the initial campaign was the "big splash." Rather what the Agency could do is to have a low cost information campaign via Face book and Google linking it to the Agency's website, spending no more than a million Swedish crowns a year or so.

6.4 Adding warning labels to the Baltic Sea fatty fish

It is clear that although the Agency's campaign was a partial success overall, certain groups were not reached. Most notably some 22,000 young Swedish women have not picked up the message that the consumption of Baltic Sea fatty fish is risky. To reach this highly "at risk" population further communication measures are needed. One way would be to attach warning labels to all Baltic Sea fatty fish sold. Such warning labels could read "Warning this product contains low levels of dioxin. If you are parents with young children or a female of child bearing age you should not eat this product more than twice a year." The Baltic Sea fishermen, and especially the fermented herring producers, would be opposed to such a measure, but at the end of the day it is more important to protect health of the Swedish population from a risk that we know is very real.

6.5 Increase the spend on communication within the Swedish Food Agency

The communications department within the Swedish Food Agency, compared to other Swedish agencies of similar size, is presently understaffed. The Agency only has 12 FTEs, while similar sized other agencies have 25-30 FTEs. At the same time the Swedish Food Agency is much more of a consumer facing Agency compared to the other Agencies in Sweden (maybe with the exception of the Swedish Medical Products Agency).

6.6 Conduct a study to see how Swedes actually perceive the hazards of consuming Baltic Sea fatty fish

At the present time it appears that a large number of Swedes are not concerned about consuming fermented herring and other Baltic Sea fatty fish. What is needed now is to do an in-depth qualitative study to find out why. Do the Swedish consumers perceive the risks as voluntary, natural and familiar and are therefore not worried or are there other underlying reasons? Such research could help the Swedish Food Agency to develop a stronger follow up campaign on this topic.

7. Conclusions

Overall the Swedish Food Agency is doing a good job when it comes to communicating the risks and benefits of Baltic Sea fatty fish. Its levels of trust among the Swedish public remain high. The 2012-2013 campaign should be seen as a success especially with such a limited budget. A number of "at risk" groups now have a better understanding about the risks of eating too much fatty fish from the Baltic Sea. What is concerning, however, is that a large number of females of child bearing age still have not picked up the Agency's message on this issue. What may happen next is that the European Commission may view the information campaign as inadequate. To counteract that the Swedish Food

Agency should push for the suggested warning label recommendation now. If that too does not work, and naturally this would have to be scientifically evaluated, then the Swedish Government should reconsider its permanent exemption from the European regulation on Baltic Sea fatty fish containing high levels of dioxin.

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